

Hidden in Plain View: Paintings Reveal Dietary Disparities Between European Social Classes (c. 1850 – 1900)

ABSTRACT:

The period of European industrialization and urbanization in the latter half of the nineteenth century brought about significant change in traditional food systems. This study identifies differences in diet quality between the upper and lower socioeconomic classes based on their depictions in selected major works of art from the period. Twenty European paintings were chosen, ten each from the upper and lower classes, which show people eating typical fare of the period. To examine class differences in diet, the artworks were coded for dietary diversity, gender, setting, and tone. Content analysis was examined in detail by comparing a randomly selected work portraying each of the two classes. Dietary diversity was measured using a questionnaire from the Food and Agriculture Organization of the United Nations, from which variable frequencies and average diversity scores were tabulated and compared. The average dietary diversity score of the higher-class group was more than double the score of the lower-class group. Depictions were equivalent for the genders, but the upper classes had more scenes in private exterior settings. In addition, the higher class paintings contained only warm and neutral tones, while the lower classes had primarily cool and neutral tones.

INTRODUCTION:

During the latter half of the 19th century, high population growth rates, coupled with the transition to urbanization and industrialization, drastically altered the social and economic fabric of European society (1). These changes contributed to higher standards of living and the formation of a prosperous middle class, but they also created new social

problems. Rapid urban growth, fueled by the migration of rural workers, led to food and housing shortages as well as class tensions (1). Despite a rise in real wages, working class couples spent approximately 65-85% of their income on food, often at the expense of other basic needs like clothing and shelter (2).

The context of urbanization also spawned a wave of new artistic movements. Realist and Impressionist painters rebelled against the conventions of academic art by disavowing traditional subject matter and brushwork (2). For these artists, painting served as a means of recording social truths and capturing perceptions of modern-day life in an ever-changing society. These artworks reflect cultural values and can be an effective tool for studying the subjective experience of class inequalities as they relate to issues of food security, dietary quality, and nutrition.

In recent decades, the impact of urbanization and industrialization on food supply and nutrition has gained popularity as a research theme, but there are still many gaps in the literature (3). For example, little consensus has been reached on the differences in diet quality between European social classes in the period from 1850 to 1900. Some historians argue that the industrial working-class diet was surprisingly balanced by contemporary standards, while others assert that the poor were chronically undernourished (4,5). The purpose of this research is to examine class disparities in diet quality as they are represented in artwork, with the goal of elucidating how individuals who lived during that time period perceived the issue.

Using a diversity index to quantify and compare diet quality in paintings is a unique approach to food urbanization studies—an approach ripe with potential to yield an array of

fresh perspectives applicable to other fields of social research. Studying historical problems related to feeding European cities in the late nineteenth century seems particularly appropriate given the contemporary background of rapid urban growth in developing countries leading to shortages and social conflicts.

METHODS:

Painting Selection

A sample of twenty paintings was chosen using the ARTstor Digital Library. ARTstor is a non-profit, on-line resource that provides a collection of over one million images from museums, archives, photographers, and artists across the globe (6). Paintings were identified with the advanced search option by entering the following key words: food, breakfast, luncheon, dinner, meal, table, kitchen, interior, eat, cook, and café. Search results were narrowed using filters for geography (Europe), classification (painting), and date range (1845 to 1900). Paintings were excluded if they did not portray meals, if they were too abstract to identify food groups, or if they lacked contextual clues about social class, such as artworks in the still-life genre. Ten paintings representing the upper-middle to upper classes and ten paintings representing the lower to lower-middle classes were selected. The artists, titles, and dates of these paintings are listed in Table 1. Social class was determined by research and the primary investigator's background in Art History.

Study Design and Content Analysis

This qualitative study was conducted by calculating dietary diversity scores for the sample of twenty paintings in order to quantify discrepancies in diet quality between social classes. The foods depicted in the paintings were sorted into the fourteen food groups

included in the Individual Dietary Diversity Score (IDDS) developed by the Food and Agriculture Organization of the United Nations (7). A wide variety of studies in different age groups have shown that a higher IDDS is related to increased nutrient adequacy and overall diet quality (7,8,9). Paintings were coded and assigned one point for the presence of each food group. IDDS was calculated by summing the number of food groups portrayed in each painting, with potential scores ranging from 0 – 14.

In addition to dietary diversity, we also examined aspects of gender, setting, and tone in the paintings. For the gender variable, all adult figures were coded as male or female. For the setting variable, the following three categories were defined: private interior, private exterior, and public. The three researchers from our team coded paintings as having private interior settings if they depicted kitchen scenes, dining rooms, or other home interiors. Private exterior settings included suburban picnics or backyard lunches and public settings included cafés, restaurants, or crowded urban parks. For the tone variable, researchers coded paintings as warm, neutral, or cool based on color criteria. Warm images used bright, vibrant colors with red, orange, pink, or yellow accents. Neutral pictures used subdued, washed-out colors (e.g. earth tones, pastels, or shades of white) with some colorful accents. Cool paintings used dark tones with blue, gray, brown, green, or purple hues. These secondary variables were coded to further examine disparities in class representation.

If it was difficult to determine the food groups or other variables portrayed in certain works of art, secondary Art Historical sources were consulted as available. To assess and improve reliability, our team of three researchers independently coded all of the paintings and the results were compared for percent agreement. Food group classifications

of painted cuisine items varied between coders, but there was still a high percent agreement of 86% in overall dietary diversity scores for the paintings. Percent agreement for gender was 98%, setting was 85%, and tone was 91% between coders. The research team examined and discussed results to reconcile coding discrepancies. Once consensus was reached on all of the paintings, variable frequencies and average diversity scores were analyzed by social class to identify emergent themes.

RESULTS:

Dietary Diversity

The average dietary diversity score for the upper-middle to upper class sample was 4.1 with individual painting scores ranging from 3 to 6 points. The average lower to lower-middle class score was 1.9 with a range from 1 to 4 points. The food diversity portrayed in the higher-class group was more than double of that in the lower class images. The greatest disparities were in the vitamin A rich fruit, other fruit, flesh meat, and fish categories. The IDDS of each painting, along with averages by social class, are presented in Table 1. The category frequencies of each variable are summarized in Table 2.

It is important to note distinctions between rural peasants and urban workers. Peasant paintings by Israëls, Millet, and Van Gogh portray only one food group—namely cereals or white tubers and roots. Urban or suburban dining scenes, such as those by Fourié or Renoir for example, contain at least two or more food groups. These results suggest that dietary diversity improved for peasants who migrated to cities during the period of urbanization. Although some progress was undoubtedly made in the late

nineteenth century, significant gaps in nutritional well-being remained prevalent between European social classes (3, 10).

Other Variables

In both class groups, gender was evenly represented with about half of adult figures being male and the other half female. In terms of setting, the higher class paintings included more private scenes of outdoor leisure and dining than the lower-class group. Paintings of the wealthier classes had only warm and neutral tones, while images of the poorer classes were mainly comprised of cool and neutral tones.

DISCUSSION:

Content analysis revealed class disparities in dietary diversity, setting, and tone. To further examine these themes, the discussion portion of this paper will compare and contrast a randomly chosen painting from each class category. *The Luncheon on the Grass*, painted by Monet in 1865, was selected from the upper-middle to upper class paintings (Figure 1). *The Potato Eaters*, which Van Gogh painted in 1885, was chosen from the sample of lower to lower-middle class images (Figure 2). Despite the radical differences in subject matter and formal techniques, the paintings share a similar aspiration—to offer a visual escape from the effects of industrialization and urbanization. Although both works achieve this objective, the upper class is depicted enjoying greater dietary diversity in a more pleasant setting with warmer, more jovial tones.

In *The Luncheon on the Grass*, Monet portrays a party of picnickers in the forest of Fontainebleau (11). The party consists of twelve figures and a dog gathered around a white tablecloth. Their fashionable attire identifies them as upper-middle class Parisians. A

seated woman passes out white porcelain dishes, as if inviting the viewer, along with the other guests, to enjoy a plate of the appetizing fare. In addition to several bottles of wine, the meal includes four food groups—"vitamin A rich fruits" (e.g. peaches), "other fruits" (e.g. grapes), "flesh meats" (e.g. chicken), and "cereals" (e.g. cake).

In *The Potato Eaters*, Van Gogh depicts five figures seated around a square table in a dimly lit interior. The peasants dine on a simple meal of potatoes and coffee. In contrast to the upper-middle class picnickers, the peasants' meal is composed of only one food group—"white tubers and roots."

Compatible with these visual representations, other investigators have gathered evidence pointing to socioeconomic differences in diet and nutritional status from historical accounts, economic surveys, and height records of the era (1,12). Content analysis of food group depictions revealed key disparities in meats, fish, and fruits. Narrative descriptions of European eating habits and data on per capita consumption indicate that meat was abundant for the privileged classes, but very limited for the rest of society in the early 1800s (13). Although a gradual democratization of meat occurred throughout the nineteenth century, the wealthy still enjoyed approximately triple the per capita meat consumption of the average industrial worker in 1902 (13). Half of the paintings in the lower class sample showed meals composed of one food group, either cereals or white tubers and roots in each of the cases. These results are substantiated by studies on household budget surveys collected in Great Britain between 1887 and 1901, which suggest that working-class families spent most of their wages on food, but obtained over 61% of calories from bread and potatoes alone, indicating low dietary diversity (5).

The findings are also consistent with historical narratives, which tell us that the diets of working-class and lower-middle class families were likely to consist of a couple ounces of tea or coffee, some cheese, a few vegetables, and an occasional small serving of meat—all the rest was bread or potatoes (14). Other studies using stature as a measure of net nutritional status have discovered height disparities, which signal diet inequalities, between various segments of European industrial society (15, 16).

Monet depicts a bountiful picnic in a lush forest, classifying the setting as a private exterior. By painting the scene *en plein air*, or outdoors, at the Forest of Fontainebleau, Monet sought to capture immediate visual impressions and the ephemeral effects of light and weather on the landscape. The carvings in the tree imply that this idyllic setting has been used as a picnic site many times before, adding a sense of romance to the picture. According to content analysis results, private exterior dining scenes were more common among paintings in the higher-class group. The Impressionist tradition of portraying the upper-middle class enjoying elegant outdoor activities developed in response to the emergence of new social structures in this era. The Pushkin Museum version of *The Luncheon on the Grass* (figure 1) was originally intended as a study for a larger-scale composition that was to measure fifteen by twenty feet (17). By painting a scene of contemporary leisure on such a large scale, Monet aimed to elevate the subject matter to the status of history painting. The representation of spontaneous, informal activities reflects art as a field of personal enjoyment rather than pure academicism.

Van Gogh's domestic scene takes place in a humble, wooden house, which classifies the setting as a private interior. On the left there is a pendulum clock, an illustration of the crucifixion with St. John and the Virgin, and a box bed set into the wall (18). In the upper

right, some kitchen utensils are visible. The prominent ceiling beams and lack of perspective elicit a sense of claustrophobia. While this dreary, unadorned setting is in keeping with the Realist tradition, Van Gogh adds a new, more expressive style to the figures. The faces of the peasants appear knobby and curved, gnarled like the potatoes themselves.

Monet's *Luncheon on the Grass* was categorized as having a warm tone. Dappled sunlight creates a luminous contrast between light and shadows throughout the composition. Sunlight filters through the beech trees transforming the foliage into brilliant green and gold flecks. These rich, golden tones are echoed in the yellow dress and fruits in the foreground. The vibrant palette and large, visible brushstrokes render an air of spontaneity and movement. Overall, the subject matter and tone combine to create a lively, enjoyable scene full of light and color.

In contrast to the warmth of Monet's painting, Van Gogh's *Potato Eaters* was categorized as having a cool tone. The only light in the composition emanates from the dingy lamp hanging above the table. The artist employs a dark, earthy palette inspired by Jozef Israëls and Jean-François Millet (18). The color range evokes the earth from which the peasants eke out a living. In a letter to his brother, Van Gogh wrote, "I have tried to emphasize that those people, eating potatoes in the lamplight, have dug the earth with those very hands they put in the dish, and so it speaks of *manual* labor, and how they have honestly earned their food (19)." The subject matter and dark, monotonous tonality create a somber mood that conveys a sense of austerity and hardship.

Despite stylistic differences, both paintings offer a visual escape from the pervasive effects of industrialization and urbanization. Monet isolates the pleasure of everyday life in an Arcadian forest setting with no signs of industry or man-made structures. *The Luncheon on the Grass* is appealing, lacks any indication of unease, and accentuates the dappled sunlight and elegant picnickers. Although *The Potato Eaters* exposes the hardships of rural working-class life, it also conveys a sense of veneration for the simplicity of their lifestyle. In a letter to his brother, the artist wrote, "I often think how the peasants form a world apart, in many respects better than the civilized world (19)." Van Gogh portrays simple country people, unspoiled by industrialization.

CONCLUSION:

Higher-class Europeans were depicted in late nineteenth-century paintings as enjoying greater dietary diversity in more congenial exterior settings with warm, positive tones. These results suggest that individuals were acutely aware of class inequalities and dietary disparities. In particular, the results suggest that the upper classes had greater access to meat, fish, and fresh fruits, which is consistent with previously published literature (20). Within the lower to lower-middle class group, urban workers had higher diversity scores than rural peasants. This reflects social change and the gradual improvement in diet quality that occurred during the industrial era. There are several ways in which this study could be meaningfully extended. It would be interesting to conduct a similar study relating to Asian, African, or American art during the same period. Likewise, examining art works from pre-industrial periods in European history would provide a useful collateral comparison in the same geography. Our hypothesis is that the gap in diet

quality between classes narrowed during the industrial era, but further work is required to validate this supposition.

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TABLE 1. Individual Dietary Diversity Scores by Painting and Average Diversity Scores by Social Class

	IDDS
UPPER-MIDDLE TO UPPER CLASS PAINTINGS	
Caillebotte, <i>Le Déjeuner</i> , 1876	4
Ensor, <i>Woman Eating Oysters</i> , 1882	3
Forain, <i>The Buffet</i> , 1884	5
Manet, <i>Le Déjeuner sur l'Herbe</i> , 1863	4
Manet, <i>Luncheon in the Studio</i> , 1868	3
Monet, <i>The Luncheon</i> , 1868	3
Monet, <i>The Luncheon on the Grass</i> , 1865	4
Monet, <i>Luncheon Indoors</i> , 1868	6
Tissot, <i>Le Déjeuner sur l'Herbe</i> , 1881-82	5
Tissot, <i>The Picnic</i> , 1876	4
<i>Average Diversity Score:</i>	4.1
LOWER TO LOWER-MIDDLE CLASS PAINTINGS	
Fourié, <i>Wedding Meal at Yport</i> , 1886	3
Frere, <i>Preparing Dinner</i> , 1868	3
Israëls, <i>Frugal Meal</i> , c. 1850 – 1900	1
Israëls, <i>Pancake day</i> , 1885	1
Millet, <i>Young Mother Preparing a Meal</i> , 1847-49	1
Pieters, <i>A Family Meal</i> , 1890s	1
Renoir, <i>Luncheon of the Boating Party</i> , 1880 – 81	2
Tassaert, <i>The Bourgeois' Kitchen</i> , 1854	4
Toulouse-Lautrec, <i>At the Café La Mie</i> , c. 1891	2
Van Gogh, <i>The Potato Eaters</i> , 1885	1
<i>Average Diversity Score:</i>	1.9

TABLE 2. Frequency of Food Group, Gender, Setting, and Tone Categories by Class

		Upper-Middle to Upper Class Paintings (n=10)	Lower to Lower- Middle Class Paintings (n=10)
FOOD GROUP			
	Cereals	8	6
	Vitamin A rich vegetables & tubers	0	2
	White tubers & roots	1	1
	Dark leafy green vegetables	0	1
	Other vegetables	2	2
	Vitamin A rich fruits	5	1
	Other fruits	8	1
	Organ meat	0	0
	Flesh meats	6	2
	Eggs	2	0
	Fish	5	1
	Legumes, nuts, & seeds	1	0
	Milk and milk products	2	1
	Oils & fats	1	1
GENDER			
	Male	26 (48.1%)	22 (51.1%)
	Female	28 (51.9%)	21 (48.8%)
SETTING			
	Private, interior	5	7
	Private, exterior	5	1
	Public	0	2
TONE			
	Warm	6	2
	Neutral	4	4
	Cool	0	4



Figure 1. Claude Monet, *The Luncheon on the Grass*, 1865-66, oil on canvas, 130 x 181 cm. Pushkin Museum, Moscow.



Figure 2. Vincent Van Gogh, *The Potato Eaters*, 1885, oil on canvas, 82 x 114 cm. Van Gogh Museum, Amsterdam.